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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,023	03/26/2004	Zhaofu Hu		8416

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WEI TE CHUNG
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EXAMINER

CANNING, ANTHONY J

ART UNIT PAPER NUMBER

2879

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/810,023

Applicant(s)

HU ET AL.

Examiner

Anthony J. Canning

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 6-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 26 September 2005.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (U.S. 5,534,743).
4. Regarding claim 1, Jones et al. disclose a barrier array for use in a flat panel display including: a shadow mask (see Fig. 7, item 28; column 6, lines 14-15) defining a plurality of openings (see Fig. 7, the region above item 36 where there is a gap in layer 28; lines 1-7 in the abstract) therethrough according to a predetermined pattern (lines 2-4 in the abstract say that the figure is formed via differential etching, which the examiner interprets as a predetermined pattern), the predetermined pattern being in accordance with a pixel pattern of a flat panel display; and an insulative layer formed (see Fig. 7, item 30; column 6, lines 15-16) on the outside surfaces of the shadow mask and inside surfaces of the shadow mask surrounding the openings (see Fig. 7, item 30, the regions directly adjacent to the openings are interpreted by the examiner as the inside regions; the regions outside of the inside regions are interpreted by the examiner as

the outside regions since they are outside of the inner regions directly adjacent to the openings).

Jones et al. also discloses a spacer (see Fig. 9, item 90), which can be formed between pixels (column 11, lines 25-31), which would render them on top of the metal mask layer (see Fig. 7, item 28).

5. Regarding claim 2, Jones et al. disclose the barrier array as described in claim 1, wherein the shadow mask is made from a material selected from the group: invar, low carbon steel, or another suitable metal alloy. Item 28 of figure 7 corresponds to item 66 of figure 8. In column 10, line 17, it is disclosed that the perforated metal layer (items 28 and 66) is an electrode. Jones et al. disclose, in lines 23-27 of column 10 that any suitable material may be used in the layers and components of the flat panel display. In Table 1 (column 7), step 4 of the manufacturing process is of a conductor using the alloy of Cr-Cu-Cr, which is an appropriate metal for the perforated metal layer. The coefficient of thermal expansion of Cr-Cu-Cr¹ is close to that of glass², which is used as the substrate in the flat panel display of Jones et al..

6. Regarding claim 3, Jones et al. disclose the barrier array as described in claim 1, wherein the insulative layer comprises alumina or magnesia (column 6, lines 15-16). Jones et al. specify alumina. Jones et al. also specify that the spacers are made from layers of aluminum oxide, which is alumina.

7. Regarding claim 4, Jones et al. disclose the barrier array as described in claim 3, wherein a thickness of the insulative layer is in the range from 10 to 500 micrometers. Specifically, Jones et al. state the each layer that forms the spacer is around 50 microns in thickness (column 11,

¹ 9.91PPM/K, according to Williams Advanced Materials company

² 9.93PPM/K, SiO₂-Na₂O (23% mol Na₂O) glass, Material Science and Engineering Handbook

lines 45-46). Therefore, one of the aluminum oxide (alumina) layers is on the perforated metal mask with a thickness that falls in the range of 10 to 500 micrometers.

8. Regarding claim 5, Jones et al. disclose the barrier array as described in claim 3, wherein a thickness of the insulative layer is in the range from 75 to 200 micrometers. Jones et al. state that the layers of the spacer do not have to be different materials, which means they could all be made from aluminum oxide (alumina). Jones et al. states the thickness of the layers can be varied to a desired spacing dimension between the respective emitter and anode plate members (column 11, lines 38-44). The examiner interprets this to mean that a range from 75 to 200 micrometers is covered by the recitation of varying thickness of the spacers by Jones et al..

9. Regarding claim 18, Jones et al. disclose a barrier array for use in a flat panel display including: a metal plate (see Fig. 7, item 28; column 6, lines 14-15) defining a plurality of openings (see Fig. 7, the region above item 36 where there is a gap in layer 28; lines 1-7 in the abstract) therethrough according to a pixel pattern of a flat panel display; and an insulative layer formed thereon (see Fig. 7, item 30; column 6, lines 15-16) on the outside surfaces of the metal layer and inside surfaces of the shadow mask surrounding the openings (see Fig. 7, item 30, the regions directly adjacent to the openings are interpreted by the examiner as the inside regions; the regions outside of the inside regions are interpreted by the examiner as the outside regions since they are outside of the inner regions directly adjacent to the openings).

Response to Arguments

10. The examiner acknowledges the grammatical corrections to the specification, the newly submitted drawings, amendments to claims 1, 2 and 18, the withdrawal of claims 6-17, and the cancellation of claim 19.
11. Jones discloses that the areas around the opening are covered with an insulative material, therefore the sides surrounding the opening are covered by insulative material.
12. Dielectric materials are also insulating materials.
13. Figure 7, item 28 is a metal plate, which satisfies the structural limitation disclosed in claim 18 of the claimed invention.

Final Rejection

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Prior Art

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haven et al. (U.S. 5,543,683) teach a barrier array for a flat panel display where a shadow mask is employed to allow the passage of light to the viewer.

Spindt et al. (U.S. 6,107,731) teach a flat panel display wherein a barrier array is configured so that insulative spacers are formed on metal electrodes.

Contact Information

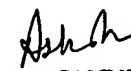
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning 

27 December 2005


ASHOK PATEL
PRIMARY EXAMINER